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THE ECONOMY OF METERS[1]

By C. L. Köhn

The sale of water is a vital question to every municipality, for the reason that if not properly and fairly sold it becomes a liability to the vendor, be it a private or municipally owned plant. On the other hand, it may become one of the city's greatest assets, if properly sold.

The sale of water under the flat rate system is unfair to both the producer and consumer. One consumer is conscientious and uses water judiciously, taking care not to let it run unnecessarily, and attending to leaks which, though small, amount in the aggregate to much. The other type of consumer wastes water by letting it run night and day, sometimes to avoid freezing, at other times for refrigerating purposes; who sprinkles his lawn and garden without a nozzle on the hose; and who is careless in every respect, knowing that no matter what amount he uses his bill will not be any larger than that of his economical neighbor, and knowing, too, that the city has absolutely no check upon the amount he uses.

The waste of water is generally practiced during hot weather and dry spells, when it is essential to husband the supply without crippling the consumer. This waste has a serious effect upon the supply, often necessitating the installation of more wells, machinery and equipment at great expense, which results in a high cost of maintenance and no larger revenue. On the other hand, in a system which is metered, these conditions are changed. To change the system, however, proper ordinances must be passed. The cost of installation is an item of considerable expense, but the expenditure is a good investment, as will be shown by comparison later.

Service and not revenue should be uppermost in the minds of the management of a municipal plant. The meter system ought to be and generally is satisfactory to a consumer, and when satisfaction to both consumer and producer is established, the results can but spell success.

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[1] Read before the Illinois Section at Urbana on March 13, 1917.

The city of Elgin owns all meters except those owned by consumers using more than 10,000 cubic feet per quarter. The only cost to the consumer is to have the plumbing prepared for the installation of the meter, the department seeing to it that meters are so placed that freezing is reduced to the minimum. When the meter is installed, the waste of water soon ceases, as a large bill will remind the consumer of the necessity of calling a plumber to rectify conditions; while if the consumer be of a careless type he pays for his own carelessness and the city loses nothing.

Plumbing inspection is another essential factor. The department of plumbing inspection is connected with the water department, and no work of any kind can be done by the plumber without first obtaining a permit from the office. After the work is completed it is inspected, for which inspection the department receives a fee of $2. This insures the householder a first-class sanitary job according to the city ordinance. The water department also makes all repairs on meters, for which work the consumer is charged only the actual cost. Under no circumstances are plumbers allowed to install or repair meters, for it would then be impossible for the department to keep a proper check upon the work. The repair department is complete in every respect, and the cost of maintenance of meters is practically nothing.

For reading meters, the city is divided into three districts, the meters in each district being read every quarter. The results are most satisfactory and economical to the department for the following reasons:

First; A certain amount of revenue is received monthly with which to do business, enabling the department to take advantage of discounts in the purchase of material and supplies.

Second; The office force is materially reduced as well as the number of meter readers. The readers of meters alternate, in no case reading the same meter during two consecutive quarters, thus avoiding carelessness and errors.

The city commenced installing meters in 1902. At the end of the year there were 3263 consumers, and of these 210 were metered. The pumpage for the year was 725,000,000 gallons, the revenue being $30,013.68.

In 1910 the city had 4655 consumers, of whom 2728 were metered. The pumpage for the year was 787,000,000 gallons and the revenue $53,687.63.

In 1915 the city had 5226 consumers, of whom 5200 were metered practically 99 per cent. For various reasons 26 consumers could not be metered. The pumpage for this year was 413,360,580 gallons, the revenue $54,223.88, showing an increase in revenue of $14,210.20 over the year 1902, and a decrease of 311,639,420 gallons in pumpage, notwithstanding the fact that the number of consumers in 1902 was 3263 as against 5226 in 1915, or a difference of 1963 consumers.

There is absolutely no free water. The city meters all public buildings, the city hall, schools, library, fire barns, parks, and also all public drinking fountains.

The large manufacturer and the railroads pay the same amount as the small householder for the same amount of water.

The rate is a sliding scale as follows:

For first 166 cu. ft. or under, per 666 cu. ft.	$1.25
For each 100 cu. ft. in excess of 666 cu. ft. up to 3,333 cu ft.	.15
For each 100 cu. ft. in excess of 3,333 cu. ft. up to 10,000 cu. ft.	.115
For each 100 cu. ft. in excess of 10,000 cu. ft. up to 26,666 cu. ft.	.075
For each 100 cu. ft. in excess of 26,666 cu. ft.	.0525

The minimum amount is $5 per annum, and if, at the end of the year, less than $5 worth of water has been used, the difference sufficient to make up $5 for the year is then paid. The small consumer, realizing that he might better use the balance of the $5 worth of water rather than pay for any amount not used, generally uses it during the summer on his lawn and garden.

The water department of the city is absolutely self-sustaining, retiring all bonded indebtedness, making all betterments, as well as installing all mains, etc., from its earnings, and has been able in addition to use part of its earnings to equip the fire department with motor-driven apparatus and still have a balance for the sinking fund. This showing is attributed to the economy of meters.

DISCUSSION

R. C. MARSH: The author states that the cost of repairing meters has been practically nothing. This may have been due to the absence of any comprehensive, systematic testing, which would show what meters were running slow or had become stuck.

W. J. Spaulding: In Springfield the experience with meters has been similar to that in Elgin, although the reduction in pumpage is not so great. The speaker cannot agree with the author's statement that the cost of maintaining meters is so small as to be of very little importance. The department at Springfield has a system of reporting the cost of every repair job. For the year just passed the expense for repairs amounted to nearly $2000, including both labor and material. As there are in service about 10,000 meters, this would mean an average cost of 20 cents per meter per year for maintenance. In addition to this cost, the cost of meter reading will amount to about as much more.